

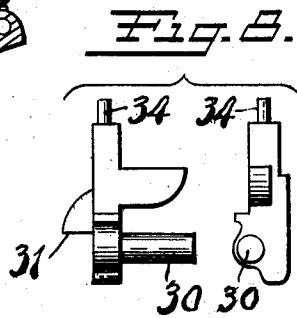
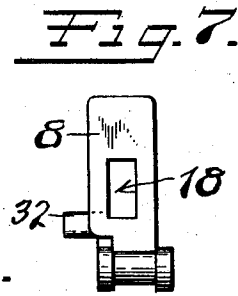
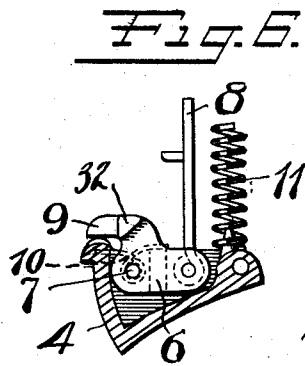
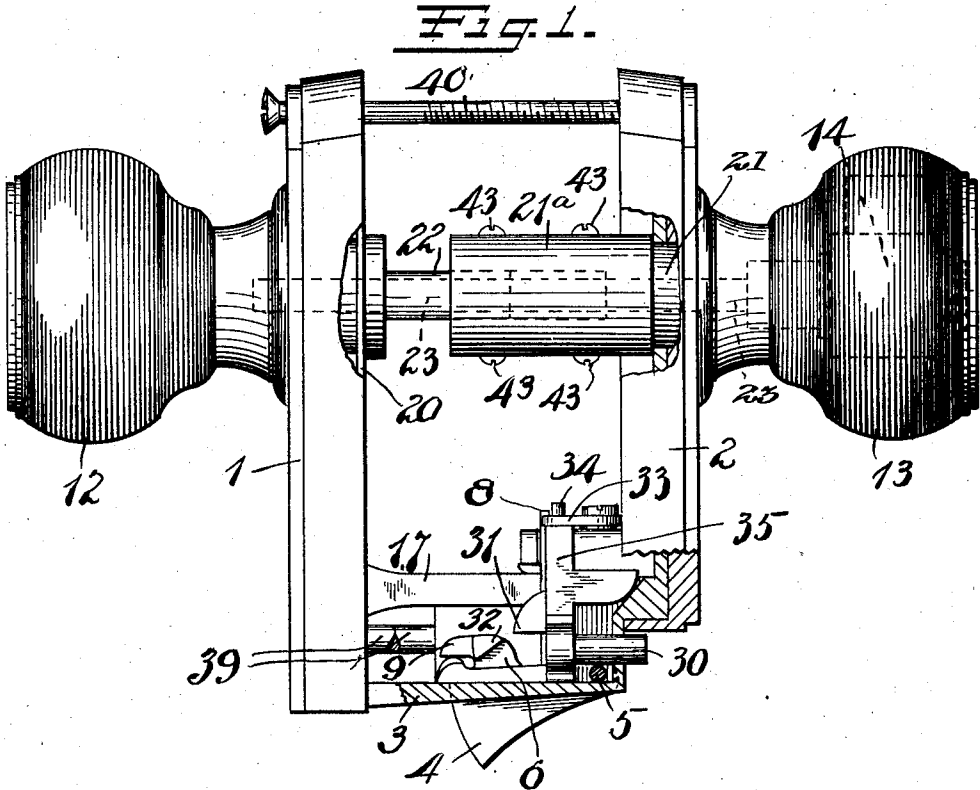
H. G. VOIGHT.
UNIT LOCK.

APPLICATION FILED FEB. 15, 1911.

997,524.

Patented July 11, 1911.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 2.

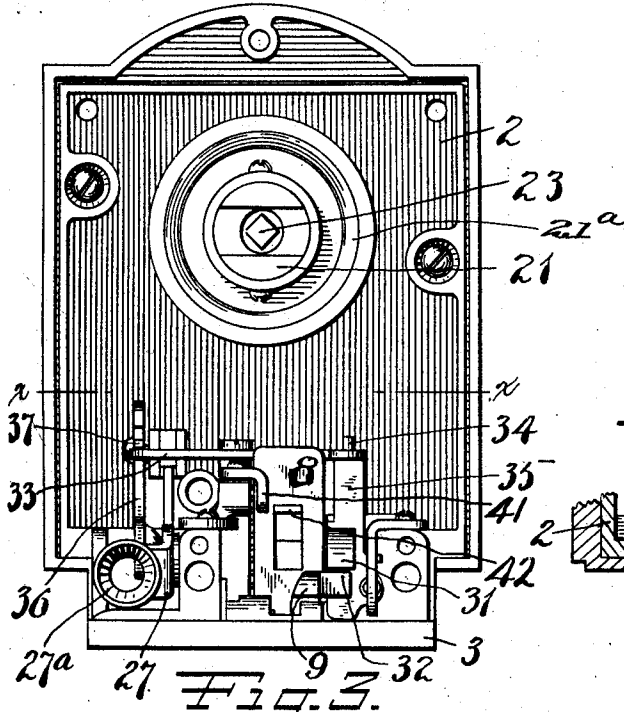


Fig. 4.

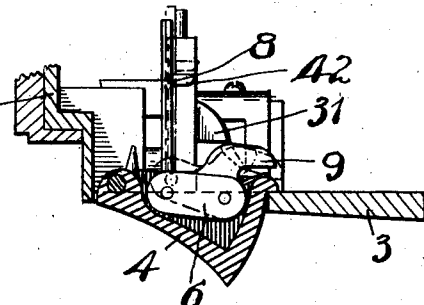


Fig. 3.

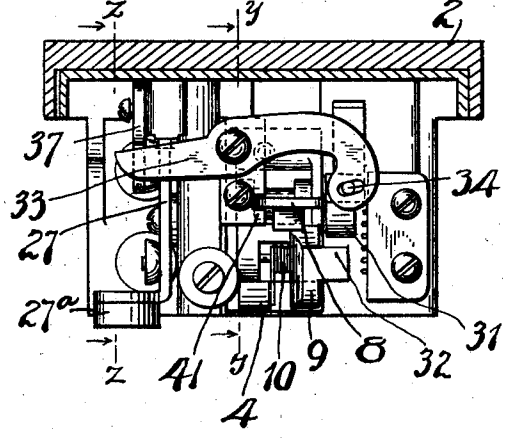
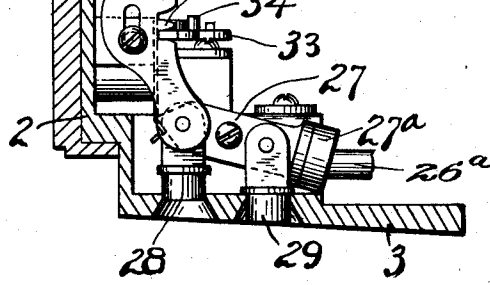


Fig. 5.



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3 SHEETS-SHEET 3.

Fig. 9.

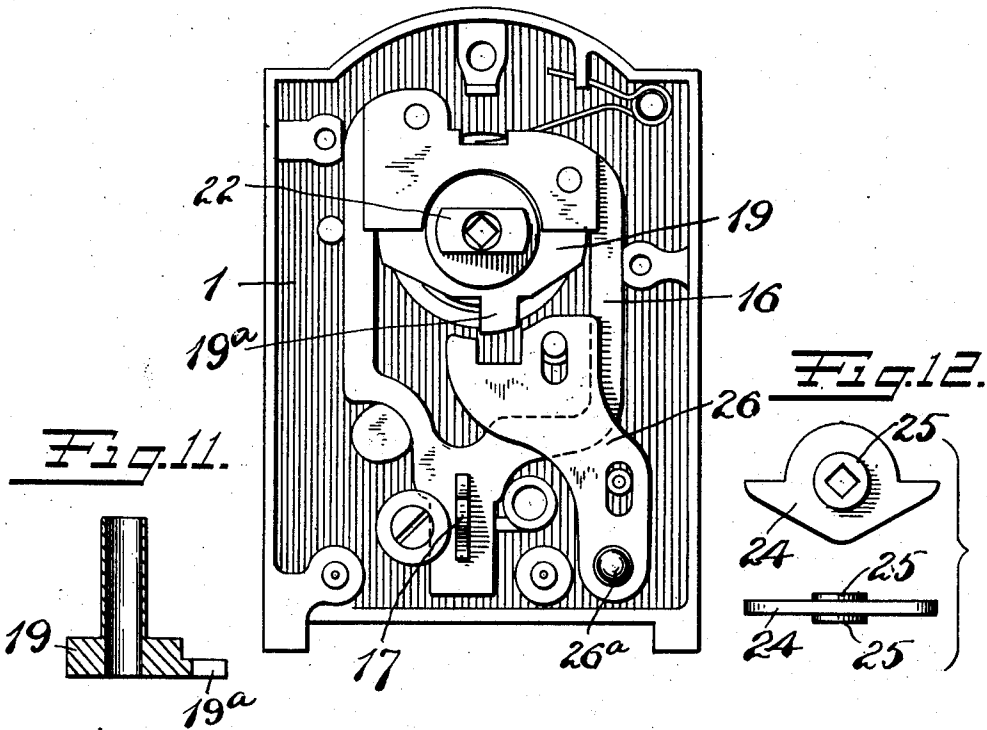
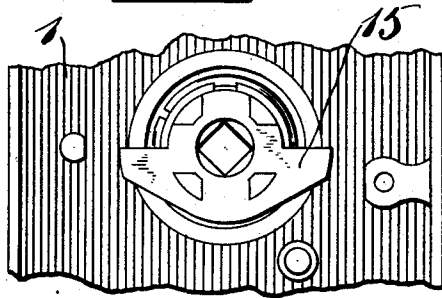


Fig. 10.



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UNITED STATES PATENT OFFICE.

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UNIT-LOCK.

997,524.

Specification of Letters Patent. Patented July 11, 1911.

Application filed February 15, 1911. Serial No. 608,701.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Unit-Locks, of which the following is a full, clear, and exact description.

My invention relates to improvements in locks and latches, the lock being of the so-called "unit" type.

The main object of the invention is to provide improved safety mechanism as well as to improve the various features of construction hereinafter referred to.

In the drawings Figure 1 is a plan view of the lock assembled, certain parts being broken away. Fig. 2 is an inside view of one section of the lock, namely, the right hand section shown in Fig. 1. Fig. 3 is a section on the line $x-x$ of Fig. 2, looking down. Fig. 4 is a section on the line $y-y$ of Fig. 3, looking in the direction of the arrow. Fig. 5 is a section on the line $z-z$ of Fig. 3, looking in the direction of the arrow, certain parts being shown in a different position from that indicated in Fig. 3. Figs. 6, 7 and 8 are detail views. Fig. 9 is a view of the inside of one section of the lock, namely, the left hand section shown in Fig. 1. Fig. 10 is a fragmentary view of certain parts shown in Fig. 9. Figs. 11 and 12 are detail views.

In the lock herein shown, I have illustrated the same of a type adapted to corridor doors or outside doors arranged to open inwardly, the latch bolt being operated by either of two independent knobs or by a key from the outside, means being provided for dogging the outer knob so that at certain times the lock can be operated from the outside only by means of a proper key.

The main frame of the lock upon which the various parts are mounted comprises an inner side plate 1 and outer side plate 2 and an end plate 3, said end plate being carried by one of said side plates and lapping over the edge of the other side plate, so that said plates may be adjusted to and fro to fit doors of different thicknesses.

The latch is carried by the face plate and it and its immediately associated parts comprise the latch 4 pivoted at 5 to swing. In a hollow space in the rear side of the latch

is located a lever 6 pivoted at 7. 8 is a latch bolt pivotally connected to one part of the lever 6. Suitable means is provided to limit the swinging movement of the lever 6, such, for example, as the stop extension 9. 10 is a spring of suitable construction for normally causing the link to assume the position shown in Fig. 6. 11 is a coil spring for projecting the latch bolt 4, the same being suitably mounted at the rear of said latch bolt.

The latch operating mechanism comprises the inner knob 12 and the outer knob 13, both of which are independently rotatable and are respectively mounted upon the plates 1 and 2. The latch operating mechanism also includes a key-operated means, for example, a cylinder lock located in the outer knob 13 and indicated by dotted lines at 14. These three independent latch-operating means are connected respectively with the latch bolt in the following manner. The knob 12 is connected with the latch bolt through the medium of a roll-back 15 suitably connected to the inner end of the knob shank, said roll-back 15 coacting with a latch slide 16 mounted to slide in a suitable guide-way sunken in the inner side of the inside plate 1, said slide carrying a laterally projecting arm 17, which engages the latch tail 8 in any suitable way, as by passing through a perforation 18 therein, said construction being such as to not interfere with the adjustment of the two side plates 1 and 2 to and fro. By this it will be seen that when the knob 12 is turned, the slide 16 will be retracted. This will retract the tail 8 until the stop shoulder 9 blocks the swinging movement of the lever 6, whereupon a continued retraction of the latch slide will pull back the latch bolt 4. The outside knob 13 carries at the inner end of its shank a roll-back 19. This roll-back 19 preferably has a support against lateral displacement in a cover plate 20 carried by the inner side plate 1 (Fig. 1). This roll-back 19 makes operative connection with the slide 16, so that by turning the knob 13 the latch bolt will be retracted. It should be here stated that the shank of the knob 13 is preferably telescopic, or otherwise suitably adjustable as to length, so that the plates 1-2 may be adjusted to and fro. In the particular form shown, the knob shank of

the knob 13 comprises the two portions 21—22, having a sliding but non-rotatable fit one within the other.

The key-controlled means for operating the latch bolt includes a spindle 23, which passes centrally through the knob 13 and shank, the outer end being suitably connected with a key-controlled means, so that by the use of a proper key said spindle may be oscillated. The inner end of the spindle passes through a third roll-back 24, which preferably has a hub 25 which projects into suitable hub-receiving recesses in the roll-backs 15—19, the said roll-back 24 being preferably located between said roll-backs. The roll-back 24 is fitted to the key-controlled spindle 23 in such a manner that when the spindle is turned, the roll-back 24 will be turned thereby; hence, and since this roll-back makes connection with the latch slide 16, it follows that the latch slide and latch bolt may be retracted by turning the spindle by means of a suitable key. Since in this case the latch bolt is expected to perform, in addition to the spring latch function, the function of locking the door with or without the aid of the usual dead bolt, I provide means for preventing the operation of the latch by the outer knob whenever desired, and also provide stop work mechanism whereby said latch bolt will actually be held against being pushed in from the outside whenever the door is closed. The means for locking the outer knob against operation is preferably constructed as follows: At the inside of the frame plate 1 is mounted a slide 26, which may be moved to and fro, and which may lock or unlock the roll-back 19. In this instance the roll-back 19 has a projection 19^a, while the adjacent end of the slide 26 has a notch which may be moved over said projection or retracted therefrom at will. The slide 26 is moved by means of a manually controlled walking beam 27, said walking beam in this instance being provided with two press buttons 28—29 exposed through the face plate 3. By pressing on one or the other of these buttons, the walking beam is tilted so as to lock or unlock the roll-back 19.

26^a is a rod carried by the slide 26, which makes a sliding or adjustable connection with the ring-like socket 27^a at one end of the walking beam.

When the roll-back 19 is locked, it follows that the outside knob 13 cannot be turned. Under such conditions, entrance from the outside could be obtained by the use of a suitable key in the manner before described. Inasmuch as an unlawful entrance might be obtained by pressing the latch back by means of a thin blade inserted between the edge of the door and the door casing, this is guarded against by the following mechanism. 30 is a plunger which is so arranged that

its outer end strikes against the stop beam of a door casing when the door is closed and thereby pressed in, its normal position being projected. When the door is closed and this plunger is pressed in, it moves inwardly a blocking shoulder 31 (Fig. 1), which stands over a shoulder 32 on the lever 6. Consequently, when this condition obtains, pressure from the outside against the latch bolt 4 cannot be successfully employed in pressing back the latch bolt 4. Therefore, this method of unlawful entrance is prevented. At this point it is proper to explain the purpose of providing the lever 6 as a part of the connecting means between the latch bolt and the latch slide. Inasmuch as when the door is closed the stop shoulder 31 stands back of the shoulder 32, the door could not be opened without removing one or the other of said shoulders, hence in this case the shoulder 32 is by the swinging movement of the lever 6 removed from its position under the shoulder 31, after which the latch bolt may be drawn back in the manner previously described. Another method of unlawful entrance comprises the operating of the stop buttons 28—29 by means of a bent wire inserted between the edge of the door and the door casing. Obviously, if it were possible to repress the position of the walking beam after the outer knob is dogged in such a manner, it would release the outer knob so that an intruder could gain entrance by simply turning the knob. I therefore provide means to guard against this method of unlawful entry, said means comprising dogging mechanism to prevent the manipulation of the buttons so long as the door is closed. This likewise is actuated by the plunger 30 and comprises a swinging lever 33, one end thereof being preferably connected by a slot-and-pin connection, (the pin being indicated at 34,) with the slide 35, upon which the plunger 30 is mounted, so that when the plunger is repressed said lever 33 will be swung. One end of the walking beam carries a slide 36, which is moved to and fro with the shifting of the walking beam. At the edge of the slide 36 is a projection or shoulder 37 formed in any suitable way, as by means of two notches, leaving said projection between them. This projection 37 is so placed relatively to one end of the lever 33 that the lever when swung by the pressing in of the plunger 30 will stand on one side or the other of said projection, and will thereby prevent movement of the slide 36 and thereby the shifting of the walking beam 37 so long as the door is closed.

Suitable guide pins 39 may be employed, if desired, to assist in the proper guidance and alinement of the plates 1—2. One or more clamping screws 40 may be employed to draw the side plates 1—2 toward each other, said screw or screws passing through

one plate and engaging with the other whereby the lock may be tightly clamped on opposite sides of the door. Obviously the exposed ends of the clamping screw or screws 40 should be at the inner side of the lock. There are certain details of improvement which are worthy of mention in this case, including a guide 41 to insure the straight line action of the pivoted latch tail 8. By insuring this straight line action, the tail of the latch always engages the latch slide rod 17 at the same point as the latch slide is being retracted. The latch tail 8 being made of comparatively thin stock, is provided with an integrally struck-out offset 42, which stands at right angles to the rear of the opening 18, thereby giving a broad bearing rest for the edge of the rod 17 to prevent wearing the latter by the frequent operation of the latch.

A new method for holding the outer knob 13 in place is illustrated in Fig. 1, in which it will be seen that the outside of the shank is in the form of a detachable sleeve 21^a held by screws 43, or other suitable fastenings. The outer end of the knob shank has a flange which, as shown, rests against the escutcheon or rose, while one end of the sleeve 21^a surrounding the inner end of the knob shank and constituting part thereof, rests against the inner face of the plate 2, holding said knob 13 firmly to its seat and yet permitting it to be readily removed at any time by simply withdrawing the screws 43 so as to release the holding sleeve. The inner solid end of the shank of the knob 13 is, as shown in Fig. 2, cut across transversely to receive the extension 22 of the other knob. The surrounding sleeve 21^a serves to strengthen this cut-across part of the outer knob shank.

It will be observed that all the parts are so arranged that the side plates 1 and 2 and the two sections of the knob shank may be adjusted to and fro without interfering in any way with the safety mechanism, these parts being so arranged and constructed that a sliding connection is provided in line with the movement of the two plates 1 and 2 toward or from each other. A distinct advantage is likewise gained in housing the roll-backs within the inner face plate 1, thereby removing them, as far as possible, from being tampered with from the outside, and also simplifying and reducing the expense of manufacture to a minimum.

From the foregoing it is apparent that in a comparatively simple form a lock of the unit type may be constructed in a most approved manner to be readily adjustable and yet provided with all of the safety devices known to the art to guard against unlawful entry.

What I claim is:

1. In a lock of the character described, two

side plates adapted to opposite sides of a door, a face plate carried by one of said plates and arranged to overstand the edges of a door, said side plates being adjustable to and fro, two independent knobs carried respectively by the inner and outer side plates, an independent roll-back for each of said knobs carried by the inner side plate, a key-actuated spindle concentrically mounted with the outer knob, a third roll-back adjacent to the first mentioned roll-backs and controlled by said spindle, a latch carried by the face plate, means of connection between said roll-backs and latch whereby said latch may be operated by any one of said roll-backs independently of the others, a stop for the roll back controlled by the outer knob, manually operable means for controlling said stop, and an automatically operable dog to control said stop to hold the same immovable in one of its positions when the door is closed.

2. In a lock of the character described, two side plates adapted to opposite sides of a door, a face plate carried by one of said plates and arranged to overstand the edges of a door, said side plates being adjustable to and fro, two independent knobs carried respectively by the inner and outer side plates, an independent roll-back for each of said knobs carried by the inner side plate, a key-actuated spindle concentrically mounted with the outer knob, a third roll-back adjacent to the first mentioned roll-backs and controlled by said spindle, a latch carried by the face plate, means of connection between said roll-backs and latch whereby said latch may be operated by any one of said roll-backs independently of the others, a stop for the roll-back controlled by the outer knob, manually operable means for controlling said stop, and an automatically operable dog to control said stop to hold the same immovable in one of its positions when the door is closed, said dog including means for blocking the latch against being pressed back when the door is closed.

3. In a lock of the character described, two side plates adapted to opposite sides of a door, a face plate carried by one of said plates and arranged to overstand the edges of a door, said side plates being adjustable to and fro, two independent knobs carried respectively by the inner and outer side plates, an independent roll-back for each of said knobs carried by the inner side plate, a key-actuated spindle concentrically mounted with the outer knob, a third roll-back adjacent to the first mentioned roll-backs and controlled by said spindle, a latch carried by the face plate, means of connection between said roll-backs and latch whereby said latch may be operated by any one of said roll-backs independently of the others, a stop for the roll-back controlled by

the outer knob, manually operable means for controlling said stop, and an automatically operable dog to control said stop to hold the same movably in one of its positions when the door is closed, said dog including means for blocking the latch against being pressed back when the door is closed, the connection between said latch and the roll-back including means for releasing said latch from said dogging means when it is desired to retract the latch operating operation of the roll-backs.

4. In a lock of the character described, two plates adapted to opposite sides of a door, a face plate carried by the outer plate and arranged to overstand the edge of a door, a latch carried by the face plate, an automatically operable dog carried by the side plate to which the face plate is connected and arranged to block the latch against being pressed in by pressure from the outside so long as the door is closed, three roll-backs carried by the inside plate and arranged for independent operation, with means for operating the same independently, a latch slide for connecting all of said tumblers with the latch, said slide carrying a right angle arm slidably connected with said latch, a stop for one of said tumblers, means for manually operating the same carried by the face plate, said automatic dogging means also dogging said stop actuating means to prevent the shifting of the same in one direction when the door is closed.

5. In a lock of the character described, two side plates adapted to opposite sides of a door, a face plate carried by the outer side plate and arranged to overstand the edge of a door, a latch carried by said face plate, means for retracting said latch, including a slide carried by the inner side plate, with means for operating the same, a connection between said slide and latch bolt including a latch tail carried by the latter, a lever connecting said latch tail with said latch bolt, said lever having a limited range of movement, a stop shoulder carried by said lever, an automatically operated dog for said latch overstanding said stop shoulder when the door is closed, said stop shoulder being removable from said dog upon the retraction of the latch through the medium of the swinging lever, and an arm carried by said slide at a right angle thereto and operating as an adjustable connection between the slide and latch tail to allow said face plates to be moved to and fro.

6. In a lock of the character described, two side plates adapted to opposite sides of a door, a face plate carried by the outer side plate and arranged to overstand the edge of a door, a latch carried by said face plate, means for retracting said latch, including a slide carried by the inner side

plate, with means for operating the same, a connection between said slide and latch bolt including a latch tail carried by the latter, a lever connecting said latch tail with said latch bolt, said lever having a limited range of movement, a stop shoulder carried by said lever, an automatically operated dog for said latch overstanding said stop shoulder when the door is closed, said stop shoulder being removable from said dog upon the retraction of the latch through the medium of the swinging lever, an arm projecting at a right angle to said slide and operating as an adjustable connection between the slide and latch tail to allow said side plates to be moved to and fro, and a manually operable stop for preventing the operation of the latch slide by one of its operating means, said stop means being carried partly by the face plate and partly by the inner side plate, and including a sliding connection to permit said side plates to be adjusted to and fro without disconnecting said stop means, said dogging device also operating to prevent the movement of said stop means when the door is closed.

7. In a lock of the character described, two side plates adapted to opposite sides of a door and adjustable to and fro, a face plate carried by the outer side plate and arranged to overstand the edge of a door, a latch carried by the face plate, a plurality of independent means carried by the inner side plate for retracting said latch from the inside and outside of a door to which the lock is applied, a stop for one of said latch operating means, and an automatically operable safety device carried by the outer side plate and arranged to hold said latch against being pressed in when the door is closed and to also hold said stop work against movement in one direction at such time.

8. In a lock of the character described, two side plates adapted to opposite sides of a door and adjustable to and fro, a face plate carried by one of said side plates and arranged to overstand the edge of a door, a latch carried by the face plate, a plurality of independent means carried by the other side plate for retracting said latch from the inside and outside of a door to which the lock is applied, a sliding connection between the said means and said latch a stop for one of said latch operating means, an automatically operable safety device carried by the first mentioned side plate and arranged to hold said latch against being pressed in when the door is closed and also to hold said stop work against movement in one direction at such time, and sliding connections between said plates, latch operating means and stop work, all of said sliding connections having parallel movement.

9. In a lock of the character described,

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two side plates adapted to opposite sides of a door and adjustable to and fro, a face plate carried by one of said side plates and arranged to overlap the edge of a door, a
5 latch carried by the face plate, a roll-back carried by the inner side plate, connections between said roll-back and said latch, a knob carried by the outer plate, the shank of said knob being extensible to permit said
10 plates to be adjusted to and fro, means for holding the outer knob in place, including a sleeve slidably mounted upon that part of the knob shank projecting inside of the outer side plate, and means for holding said slidable sleeve in place.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
